

Title Page for all entries in the Biomedical Breakthroughs and My Life Contest

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Title of Entry: Biomedical Breakthroughs and My Life Essay

Teacher's Name (if entering as part of a school class): Mrs. Busch

School Name (requested from all participants) Mountain View Middle School

Category: (Essay, Poster, or Video)

Theme Animal Research Helping Animals

Enter this essay in the English Language Learner (for 5 years or less of English) category:

No

Biomedical Breakthroughs and My Life

Animal research typically has a bad name due to the common stereotype that it involves harming animals for human gain. But the discoveries made by animal research have given both humans and animals numerous benefits. I myself have had many pets, and most have died due to disease and injury, but I still have my favorite, my pet turtle, and I want what's best for his well-being. I know that animal research can and will help scientists make more discoveries to help improve the lives of pets and animals in general. Animal research helps produce medicine for animals.

Animal research has produced cures for disease-struck animals. Animals can contract diseases too, so it's important to have the cure for when infections or other medical issues occur. Research has provided many treatments for curable ailments. Cats and dogs tend to have the most treatment among animals, since there are dental care options for them. Dogs and cats also have access to vaccines, including hepatitis vaccines. Cats have treatments for feline immunodeficiency virus. Antibiotics for both pets and livestock have been produced. Cats, dogs, and horses can have cataract implants when needed. Similarly, aging animals can have hearing aids. Once-paralyzed dogs can have nasal cells implanted into their spines so they may walk again. A cure for SIDS (sudden infant death syndrome) in German Sheppard puppies is expected. There is even a treatment for anthrax poisoning.

Chronic diseases in animals also have treatments. For those diseases that won't truly go away, there are treatments, but no cures, and animals are as well affected by them. Doctor Ruthanne Chun once noted, "...But humans, maybe 2,000 are diagnosed a year, whereas in dogs maybe 10,000 new cases are diagnosed per year, so we can get a lot more information..." That is why research on animals regarding diseases such as cancer, diabetes, and the formation of tumors is so widely conducted. Cancer appears in pets very commonly, and the same treatment/medicine a human uses is administered. Thanks to cancer drugs, only five percent of pets who require chemotherapy develop severe symptoms and are hospitalized.

One case of pet tumors providing answers is the story of a Maine Coon, Henry. Henry had a tumor in his pituitary gland that caused the production of excess growth hormones and the development of diabetes. He fully recovered, but neurosurgeons hope to make discoveries about diabetes and the tumor's growth through examination of its cells.

Animal surgery has also advanced due to the research conducted on animals. Research on the North American porcupine and its barbed quills illustrate to biomedical engineers the possibility of bio-engineered surgical staples 4 times more durable than standard staples due to their barbed edges. Through the research of Gecko feet, scientists have developed bandages that don't move when wet. These have been tested during rat surgery. The pet transplantation/implantation field has also had numerous advances, including an approximated 350 dogs a year who receive artificial hip implants due to dysplasia, the world's first pacemaker being implanted into a dog in 1967, and the invention of the limb-sparing technique of bone transplantation, which uses a fragment of healthy bone and a device known as an Ilizarov (named after the scientist who developed it). This small machine slowly moves the fragment across a limb suffering from bone cancer, which helps the body's natural reparation and regeneration abilities to heal the limb. But perhaps the most significant of the surgical breakthroughs involving animals is the creation of the CAT scan, which was developed by the use of pigs.

In conclusion, animal research helps produce medicine for animals. For all of our furry, scaly, or feathery friends, there is treatment for almost whatever may ail them. The animal research division may be thought of as a cause of harm to animals, but it is doing a plethora of work to help them. After all, does animal research not help produce medicine for animals?

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